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**SCIENTIFIC COUNCIL MEETING – JUNE 2008****Spanish Research Report for 2007**

by

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All effort and catch information in this Report are based on information from NAFO observers on board. In 2007 information from 1677 days was available while total effort of the Spanish fleet in NAFO Regulatory Area was 1677 days (100% coverage). Estimates from NAFO observers of Spanish catches by species and Division in 2007 are presented in Table 1. The split by species of grenadiers were calculated based upon the percentage observed by the IEO scientific observers.

In addition to NAFO observers, IEO scientific observers were on board. All length, age and biological information presented in this paper is based on sampling carried out by IEO observers: in 2007, 262 samples were taken, with 48 024 individuals of different species examined. These samples were made in 281 working days that it means 17 % of the Spanish total effort.

**SUBAREA 1 and 2****A. Status of the fisheries**

A total of 2 Spanish pelagic trawlers operated in NAFO Regulatory Area (NRA) Subarea 1 and 2 (Div. 1F and 2J) during 2007, amounting 7 days of fishing effort. Catches in NRA Div. 1F and 2J were 13 tons of pelagic redfish (*Sebastes mentella*) (Table 1). Table 2 shows effort and catches by quarter and Division for this fishery.

Part of the Spanish effort in the pelagic redfish fishery during 2007 was carried out within the EEZ of Greenland (NAFO and ICES areas). In 2007 four spanish vessels have caught 357 tons of pelagic redfish in Greenland waters.

More complete information about this fishery can be found in ICES North-Western Working Group Reports.

**SUBAREA 3****A. Status of the fisheries**

A total of 21 Spanish trawlers operated in NAFO Regulatory Area, Div. 3LMNO, during 2007, amounting to 1 677 days (25 163 hours) of fishing effort. This implies a decrease in 2007 of 76% compared to 2003 effort (Table 3). Total catches (Table 1) for all species combined in Div. 3LMNO were 14 044 tons in 2007, compared to 16 957 tons in 2006.

Table 4 shows the effort (hours) by quarter and Division and their percentage. Table 5 presents the percentage of the effort by Division and mesh size.

These tables show that the Spanish fleet has, at least, four different fisheries in NAFO Subarea 3 characterized by different mesh size, target species, depth and fishing area. The Spanish fleet effort in NAFO area is mainly directed to Greenland halibut (mostly in Div. 3LM), alternating with the skate fishery in the second half of the year (Div. 3NO), shrimp fishery (Div. 3LM), and in less degree redfish (Div. 3O). In Div. 3L, most of the effort was performed using cod-end mesh size of 135 mm, indicating that the fleet targeted Greenland halibut. In the first half of the year a small part of the effort was directed to the shrimp fishery. Regarding Div. 3M, most of the effort was carried out using 135 mm cod-end mesh size targeting Greenland halibut. The 22% of the fishing effort was carried out using 40 mm cod-end mesh size directed to the shrimp fishery. In Div. 3N and during the first half of the year, fishing was performed using 135 and 280 mm cod-end mesh size, which indicates that the fleet targeted Greenland halibut in depth more than 700 m. and skate in depth less than 200 m. in similar proportion. However, since July most part of the effort moved to depths less than 200 m where the skate fishery took place using 280 mm mesh size. Fishing effort in Div. 3O was limited (4%) and targeted redfish, using mainly 135 mm mesh size.

In addition to NAFO observers (NAFO Observers Program), 5 IEO scientific observers were onboard vessels, comprising a total of 281 observed fishing days, around 17% coverage of the total Spanish effort. Besides recording catches, discards, and effort, these observers carried out biological sampling of the main species taken in the catch. In 2007, 262 length samples were taken, with 48 024 individuals of different species examined to obtain the length distributions. This includes recording weight at length, sex-ratio, maturity stages, performing stomach contents analyses, and collecting material for reproductive studies about Greenland halibut, roughhead grenadier and American plaice. Otoliths of these three species were also taken for age determination. In 2007, 262 length samples were taken, with 48 024 individuals of different species examined to obtain the length distributions (Table 6). Length and age distributions presented in this paper are based on sampling carried out by these observers. Parameters used for the length-weight relationships are shown by species in Table 7.

#### **Cod (Div. 3NO; Div. 3M)**

Main part of the catches of this species were taken as by-catch in the skate fishery and Greenland halibut fishery in Div. 3N. Very few catches were taken in Div. 3LMO.

Table 8 shows the catch length distribution for 3M cod. Catches length distribution for Div. 3NO are presented in Table 9, all samples were taken in Division 3O.

#### **Redfish (Div. 3LN; Div. 3M; Div. 3O)**

Most of the catches in Div. 3LN were taken as by-catch in the Greenland halibut fishery. In Div. 3M the redfish catches in 2007 have been high (1017 ton) compared to previous years. In this Division a small part of the catches were taken as by-catch in the Shrimp fishery. A directed fishery for this species took place in Div. 3O mostly in the second half of this year. Catches have reached 1033 ton in this Division.

Table 10 shows the length distribution for Div. 3LN, all samples were taken in Division 3L. Catches length distribution for Div. 3M and 3O are presented in Table 11 and Table 12, respectively.

#### **American plaice (Div. 3LNO; Div. 3M)**

Most catches were taken in Div. 3LNO as by-catch of the Greenland halibut and skate fisheries. Catches in Div. 3M only amounted 33 tons and were taken as by-catch of the Greenland halibut fishery.

Length distributions for Div. 3LNO are presented in Table 13. There is not available length distributions for Division 3M.

### **Witch flounder (Div. 2J and 3KL; Div. 3NO; Div. 3M)**

This species is taken as by-catch in the Greenland halibut fishery in Divisions 3LMNO. This year, there was only length distribution samples for Witch flounder Division 3NO (Table 14).

### **Yellowtail flounder (Div. 3LNO)**

Most of the catches were taken in Div. 3N as by-catch in the skate and Greenland halibut fishery. Length distributions for Yellowtail flounder Div. 3LNO are presented in Table 15, all samples were taken in Division 3N.

### **Greenland halibut (Subareas 2 and 3)**

Greenland halibut continues to be the main target species for the Spanish fleet in NAFO area. A great reduction of effort in this fishery has been carried out in the last years to adapt to the NAFO Greenland halibut recovery plan. Most of the catches have been taken in the Flemish Pass area (Div. 3LM) at depths more than 700 meters. The mesh size used for this fishery was equal to or greater than 135 mm. Tables 16, 17 show length distributions of Spanish catches by Division and Table 18 shows the total length distributions of Spanish catches in Divisions 3LMNO. Total age composition based in the Spanish Age Length Key (ALK), mean weight and mean length at age for Div. 3LMNO are presented in Table 19. Most of the Greenland halibut catches corresponds to ages 5 to 8, with a peak at ages 6 and 7.

### **Thorny skate (Div. 3LNO; Div. 3M)**

Catches comprise many species of skate, thus the catch of skate in Table 1 refers to *Raja spp.* Most of the catches were taken in Div. 3N at depths less than 200 meters, where a fishery directed to thorny skate took place mainly in the second semester of the year, using 280 mm mesh size. Skate catches in Div. 3LM were smaller than those in Div. 3NO and they were by-catch of the Greenland halibut fishery (135 mm cod-end).

Table 20 shows the total catches length distributions of Div. 3LNO, all samples were taken in Division 3LN. There was only two length distribution samples available for Division 3M.

### **Roughhead grenadier (Subarea 2 and 3)**

Roughhead grenadier is the main species taken as by-catch in the Greenland halibut fishery, and most of the 2007 catches were taken in Div. 3LM. Individuals were measured from tip of snout to base of first anal-fin ray (AFL), in 0.5 cm intervals. Tables 21 and 22 show the AFL length distributions, in 1 cm intervals, of Spanish catches by Division and for Div. 3LMNO. Age distributions based in the Spanish Age Length Key (ALK), mean weight and mean length (AFL) at age of the total catch for Div. 3LMNO are presented in Table 23. Most of the Roughhead grenadier catches in 2007 were based on ages 5 to 14 with two peaks at ages 7 and 11.

### **White hake (Div. 3LMNO)**

Catches in 2007 are in the same level as before 2000. Catches of this species in 2007 were a small by-catch of different fisheries. In Div. 3LM they are by-catch of the Greenland halibut fishery and by-catch of the redfish fishery in Div. 3O. There was not length distribution samplings available in 2007.

## **(B) Research studies**

The Spanish bottom trawl survey in NAFO Regulatory area Div. 3NO was conducted in May and June 2007 on board R/V Vizconde de Eza using Campelen gear with a stratified design. A total of 111 hauls were carried out up to a depth of 1 450 m, one of which was null. The results of the Spanish 3NO bottom trawl survey, including biomass indices with their errors and length distributions, as well as the calculated biomass based on conversion of length frequencies for Greenland halibut and American plaice; Atlantic cod and yellowtail flounder; Thorny skate, white hake and roughhead grenadier are presented as Scientific Council Research documents. As in the years 1995 and 1996 few deeper strata were surveyed, the data obtained in those surveys are not representative for most of the

species, so the data is presented since 1997 to 2007 for all the species, except for Yellowtail flounder, whose data are presented for the whole period, and for White hake, presented for the period 2001-2007 because before 2001 there are no data available.

Feeding studies on the main species continued to be conducted, and material for histology (Cod, American plaice, Greenland halibut and redfish) and aging (Cod, American plaice, Greenland halibut, redfish, Roughhead grenadier, Yellowtail and Which flounder) studies were taken.

Sixty nine hydrographic profile samplings were made in a depth range of 44 - 1393 m, one which was null.

In 2003 it was decided to extend the Spanish 3NO survey toward Div. 3L (Flemish Pass). In 2007, the bottom trawl survey in Flemish Pass (Div. 3L) was carry out on board R/V Vizconde de Eza using the usual survey gear (Campelen 1800) from July 23th to August 11th. The area surveyed was Flemish Pass to depths up 800 fathoms (1463 m) following the same procedure as in previous years. The number of hauls was 99 and 5 of them were nulls. Survey results including abundance indices and length distributions of the main commercial species are presented as Scientific Council Research documents. Survey results for Div. 3LNO of the northern shrimp (*Pandalus borealis*) were presented in SCR 07/79.

Feeding studies on Greenland halibut and American plaice continued to be performed and samples for histological (Greenland halibut, American plaice) and aging (Greenland halibut, American plaice and cod) studies were taken.

Ninety one hydrographic profile samplings were made in a depth range of 116-1140 m.

In 2007 the Spanish administration obtained a license from Canadian Authorities to carry out a research survey inside of the Canadian waters in 3L Division. This survey was made by the R/V Vizconde de Eza, covering 13 strata in the north of Div. 3L, using a Campelen survey gear up to 1451 meters depth and following the same procedures as in 3NO survey. Problems about the delay with the fishing license did not permit to carry out the total of hauls planned and only were made 26 valid hauls. Total biomass, calculated by swept area method, for the main species is shown in the Table 24. Due to the low number of hauls these results should be considered with caution.

The EU bottom trawl survey in Flemish Cap (Div. 3M) was carried out on board R/V Vizconde de Eza using the usual survey gear (Lofoten) from June 23th to July 19th 2007. The area surveyed was Flemish Cap Bank to depths up to 800 fathoms (1 400 m) following the same procedure as in previous years. The number of hauls was 179 and two of them were nulls. Survey results including abundance indices of the main commercial species and age distributions for cod, redfish, American plaice, roughhead grenadier and Greenland halibut are presented as Scientific Council Research documents. Flemish Cap survey results for northern shrimp (*Pandalus borealis*) were presented in SCR 07/78.

Samples for histological assessment of sexual maturity of cod, redfish, Greenland halibut and Roughhead grenadier were taken.

Oceanography studies continued to take place.

## REFERENCES

Casas, J.M. Northern shrimp (*Pandalus borealis*) on Flemish Cap Survey 2007. NAFO SCR Doc. 07/78

Casas, J.M. Northern shrimp (*Pandalus borealis*, Krøyer) from Spanish bottom trawl survey 2007 in NAFO Divisions 3LNO. NAFO SCR Doc. 07/79.

**Table 1.** Spanish Catches (ton) in NAFO Area in 2006 by Division, based on NAFO Observers information.

Code	English_name	Scientific_name	Division						Total (ton)
			1F	2J	3L	3M	3N	3O	
GHL	Greenland halibut	Reinhardtius hippoglossoides			3164	1100	449	47	4760
SKA	Raja rays nei	Raja spp			74	41	3671	113	3899
RED	Atlantic redfishes nei	Sebastes spp	10	3	69	1017	13	1033	2145
PRA	Northern prawn	Pandalus borealis			188	692			880
PLA	American plaice	Hippoglossoides platessoides			37	41	337	84	500
YEL	Yellowtail flounder	Limanda ferruginea			16	0	309	37	362
RHG	Roughhead grenadier	Macrourus berglax			177	114	38	4	333
COD	Atlantic cod	Gadus morhua			13	12	221	41	287
RNG	Roundnose grenadier	Coryphaenoides rupestris			36	96	3	0	135
WIT	Witch flounder	Glyptocephalus cynoglossus			34	17	41	36	128
HKR	Red hake	Urophycis chuss			48	34	2	1	85
HKW	White hake	Urophycis tenuis			31	34	2	14	81
CAA	Atlantic wolffish	Anarhichas lupus			27	11	11	1	50
	Sharps				18	5	5	0	28
ANG	American angler	Lophius americanus					8	2	10
NZB	Marlin-spike grenadier	Nezumia bairdi			3		4		7
ANT	Blue antimora	Antimora rostrata			0	4	0		4
ROL	Rocklings nei	Gaidropsarus spp					0	1	1
CFB	Black dogfish	Centroscyllium fabricii			0	0			0
CAS	Spotted wolffish	Anarhichas minor					0	0	0
CAB	Northern wolffish	Anarhichas denticulatus			0			0	0
Others	Others		0	0	42	63	216	41	362
Total	(ton)		10	3	3977	3281	5330	1455	14056

**Table 2.** Fishing effort (days) of the Spanish fleet, by quarter and Division and redfish catches (tons) by quarter and Division in NRA SA 1 and 2.

Div.	Effort (days)				
	1st Q	2nd Q	3rd Q	4th Q	Total
1F			5		5
2J			2		2

  

Div.	Redfish Catches (tons)				
	1st Q	2nd Q	3rd Q	4th Q	Total
1F			10		10
2J			3		3

**Table 3.** Fishing effort (hours) of the Spanish fleet in 2007 in Divisions 3LMNO by year, as well as percentage of effort reduction compare with 2003.

3LMNO	2003	2004	2005	2006	2007
Effort (Hours)	106821	76028	60128	44044	25163
Effort reduction	0%	29%	44%	59%	76%

**Table 4.** Fishing effort (hours) of the Spanish fleet in 2007, by quarter and Division, as well as percentage of effort by quarter and Division.

Div.	units	1st Q	2nd Q	3rd Q	4th Q	Total	%
3L	Hours	4739	3370	2812	513	11434	45%
3M	Hours	2823	2415	968	170	6376	25%
3N	Hours	939	1527	1745	2132	6344	25%
3O	Hours	50	336	208	414	1008	4%
	Total Hours	8552	7648	5734	3230	25163	100%
	%	34%	30%	23%	13%	100%	

**Table 5-.** Percentage of the effort in SA 3 by mesh size, quarter and Division.

Div.	Mesh Size	1st Q	2nd Q	3rd Q	4th Q	Total
3L	<90 mm	6%		2%		3%
	100-200 mm	94%	100%	98%	100%	97%
	>200 mm					
3M	<90 mm	22%	19%	20%	81%	22%
	100-200 mm	78%	81%	80%	19%	78%
	>200 mm					
3N	<90 mm					
	100-200 mm	59%	43%	25%	4%	27%
	>200 mm	41%	57%	75%	96%	73%
3O	<90 mm					
	100-200 mm	100%	92%	100%	74%	87%
	>200 mm		8%		26%	13%

**Table 6.** Length distribution samples and sampled individuals by Division, species and gear (mesh size) .

Species	Divisions	Gear	Samples	Sampled Ind.
Greenland halibut	3L	135 mm	108	21343
Greenland halibut	3M	135 mm	21	4734
Greenland halibut	3N	135 mm	19	3642
Redfish	3L	135 mm	7	1454
Redfish	3M	135 mm	8	1417
Redfish	3M	40 mm	1	114
Redfish	3O	135 mm	24	4886
Roughhead grenadier	3L	135 mm	13	2103
Roughhead grenadier	3M	135 mm	3	654
Roughhead grenadier	3N	135 mm	7	1151
American plaice	3L	135 mm	6	1493
American plaice	3N	135 mm	8	114
American plaice	3N	280 mm	7	931
American plaice	3O	135 mm	3	610
Skates	3L	135 mm	3	255
Skates	3M	135 mm	2	239
Skates	3N	135 mm	1	147
Skates	3N	280 mm	9	1227
Witch flounder	3N	135 mm	1	110
Witch flounder	3O	135 mm	1	109
Witch flounder	3O	280 mm	1	100
Cod	3M	135 mm	4	154
Cod	3O	135 mm	2	401
Yellowtail flounder	3N	135 mm	2	435
Yellowtail flounder	3N	280 mm	1	201

**Table 7.** Parameters of the length-weight relationship ( $W(g) = a \cdot L(cm)^b$ ) by species.

Species	a	b
Greenland halibut	0.00740	3.0310
Redfish	0.01900	2.9060
Roughhead grenadier	0.11390	2.8921
Witch flounder	0.00220	3.2995
American plaice	0.00600	3.1127
Cod	0.00800	3.0400
Roundnose grenadier	0.20400	2.9636
Yellowtail Flounder	0.00710	3.0903
Skate	0.01115	2.9471
<i>S. mentella</i>	0.02473	2.8376
White Hake	0.00540	3.0938



**Table 8.** Length distribution of 3M Spanish cod catches.

Cod Length (cm)	Division 3M			Total
	Males	Females	Ind.	
40	0	0	0	0
41	0	0	0	0
42	0	0	0	0
43	0	0	29	29
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	57	57
49	0	0	0	0
50	0	0	29	29
51	0	0	58	58
52	0	0	59	59
53	0	0	58	58
54	0	0	144	144
55	0	0	119	119
56	0	0	5	5
57	0	0	3	3
58	0	0	31	31
59	0	0	1	1
60	0	0	1	1
61	0	0	30	30
62	0	0	0	0
63	0	0	0	0
64	0	0	0	0
65	0	0	30	30
66	0	0	1	1
67	0	0	29	29
68	0	0	1	1
69	0	0	86	86
70	0	0	4	4
71	0	0	31	31
72	0	0	60	60
73	0	0	178	178
74	0	0	65	65
75	0	0	94	94
76	0	0	60	60
77	0	0	87	87
78	0	0	89	89
79	0	0	31	31
80	0	0	57	57
81	0	0	57	57
82	0	0	31	31
83	0	0	29	29
84	0	0	31	31
85	0	0	87	87
86	0	0	30	30

87	0	0	87	87
88	0	0	31	31
89	0	0	117	117
90	0	0	31	31
91	0	0	29	29
92	0	0	30	30
93	0	0	114	114
94	0	0	30	30
95	0	0	1	1
96	0	0	1	1
97	0	0	0	0
98	0	0	30	30
99	0	0	0	0
100	0	0	29	29
101	0	0	0	0
102	0	0	0	0
103	0	0	29	29
104	0	0	0	0
105	0	0	0	0
106	0	0	0	0
107	0	0	0	0
108	0	0	1	1
109	0	0	0	0
110	0	0	0	0
111	0	0	29	29
112	0	0	0	0
Total	0	0	2378	2378

Ind. Sampled	154
Samples	4
Catch (ton)	12

**Table 9.** Length distribution of 3NO Spanish cod catches.

Cod Length (cm)	Division 3M			Total
	Males	Females	Ind.	
35	648	0	0	648
36	1477	0	0	1477
37	1658	3603	0	5261
38	2955	4612	0	7567
39	5909	10160	0	16069
40	4793	4900	0	9692
41	10341	11744	0	22085
42	9225	5367	0	14592
43	11999	8683	0	20682
44	10341	11350	0	21691
45	6738	9980	0	16718
46	6738	7206	0	13944
47	5080	9151	0	14231
48	7206	8215	0	15421
49	6016	5909	0	11925
50	5802	8683	0	14485
51	6738	8396	0	15134
52	6090	2306	0	8396
53	2487	6196	0	8683
54	3422	6090	0	9512
55	2126	2306	0	4432
56	3783	2955	0	6738
57	3135	1658	0	4793
58	2126	4144	0	6270
59	2306	1658	0	3964
60	648	2306	0	2955
61	648	0	0	648
62	1477	648	0	2126
63	1477	0	0	1477
64	829	829	0	1658
65	0	829	0	829
66	0	0	0	0
67	1477	0	0	1477
68	648	829	0	1477
69	648	0	0	648
70	0	1477	0	1477
71	829	0	0	829
72	829	0	0	829
73	0	0	0	0
74	0	648	0	648
75	0	829	0	829
76	0	0	0	0
77	0	0	0	0
78	829	829	0	1658
79	648	0	0	648
80	0	0	0	0
81	0	0	0	0

<b>82</b>	0	829	0	829
<b>83</b>	0	0	0	0
<b>84</b>	0	0	0	0
<b>85</b>	0	0	0	0
<b>86</b>	829	0	0	829
<b>87</b>	0	0	0	0
<b>88</b>	0	0	0	0
<b>89</b>	0	0	0	0
<b>90</b>	0	0	0	0
<b>Total</b>	140955	155326	0	296280
<b>Ind. Sampled</b>				401
<b>Samples</b>				2
<b>Catch (ton)</b>				262

**Table 10.** Length distribution of 3LN Spanish redfish catches by Division.

<b>Redfish Length (cm)</b>	<b>3LN</b>			<b>Total</b>
	<b>Males</b>	<b>Females</b>	<b>Ind.</b>	
<b>15</b>	0	0	0	0
<b>16</b>	0	0	0	0
<b>17</b>	0	0	0	0
<b>18</b>	373	0	0	373
<b>19</b>	447	73	0	520
<b>20</b>	73	300	0	373
<b>21</b>	1079	0	0	1079
<b>22</b>	292	652	0	945
<b>23</b>	520	1579	0	2099
<b>24</b>	4001	3165	0	7166
<b>25</b>	6190	6677	0	12867
<b>26</b>	7404	6499	0	13903
<b>27</b>	12206	10088	0	22294
<b>28</b>	9048	11803	0	20851
<b>29</b>	12058	10640	0	22698
<b>30</b>	12707	12167	0	24874
<b>31</b>	12584	15222	0	27806
<b>32</b>	10897	12874	0	23771
<b>33</b>	8638	10045	0	18683
<b>34</b>	5820	7782	0	13602
<b>35</b>	3063	3671	0	6734
<b>36</b>	2360	2053	0	4413
<b>37</b>	1249	1043	0	2291
<b>38</b>	818	196	0	1015
<b>39</b>	113	196	0	310
<b>40</b>	0	0	0	0
<b>41</b>	112	112	0	224
<b>42</b>	300	0	0	300
<b>43</b>	337	327	0	663
<b>44</b>	0	0	0	0
<b>45</b>	0	0	0	0
<b>46</b>	0	0	0	0
<b>47</b>	0	0	0	0
<b>TOTAL</b>	112692	117165	0	229857
<b>Ind. Sampled</b>				1484
<b>Samples</b>				7
<b>Catch (ton)</b>				82

**Table 11.** Redfish 3M stock Spanish catches length distribution.

<b>Redfish</b>	<b>3M</b>			
<b>Length (cm)</b>	<b>Males</b>	<b>Females</b>	<b>Ind.</b>	<b>Total</b>
<b>9</b>	0	0	3175	3175
<b>10</b>	0	0	3175	3175
<b>11</b>	0	0	3175	3175
<b>12</b>	0	0	3175	3175
<b>13</b>	0	0	34927	34927
<b>14</b>	0	0	101606	101606
<b>15</b>	15216	0	133977	149194
<b>16</b>	31977	5072	71751	108801
<b>17</b>	38779	18767	11423	68969
<b>18</b>	81209	38676	3175	123060
<b>19</b>	54583	62141	7557	124281
<b>20</b>	73656	55421	8247	137325
<b>21</b>	86430	55108	8247	149785
<b>22</b>	92834	76430	0	169264
<b>23</b>	90166	85921	5072	181160
<b>24</b>	155975	91160	0	247135
<b>25</b>	187653	153791	0	341444
<b>26</b>	234921	209350	3175	447446
<b>27</b>	347897	206085	0	553983
<b>28</b>	195235	184090	0	379324
<b>29</b>	149198	169246	0	318444
<b>30</b>	74108	160030	0	234138
<b>31</b>	36367	51464	0	87831
<b>32</b>	14126	41273	0	55398
<b>33</b>	5672	29764	0	35436
<b>34</b>	0	26457	0	26457
<b>35</b>	1022	9744	0	10766
<b>36</b>	0	5072	0	5072
<b>37</b>	10144	0	0	10144
<b>38</b>	0	0	0	0
<b>39</b>	0	4168	0	4168
<b>40</b>	0	0	0	0
<b>41</b>	0	0	0	0
<b>42</b>	0	1022	0	1022
<b>43</b>	1022	0	0	1022
<b>44</b>	0	0	0	0
<b>45</b>	0	864	0	864
<b>46</b>	0	864	0	864
<b>47</b>	0	864	0	864
<b>48</b>	0	1728	0	1728
<b>49</b>	0	864	0	864
<b>50+</b>	0	864	0	864
<b>TOTAL</b>	1978190	1746302	401860	4126352
<b>Ind. Sampled</b>	15131			
<b>Samples</b>	9			
<b>Catch (ton)</b>	1017			

**Table 12.** Redfish 3O stock Spanish catches length distribution.

<b>Redfish</b>	<b>3O</b>			
<b>Length (cm)</b>	<b>Males</b>	<b>Females</b>	<b>Ind.</b>	<b>Total</b>
<b>7</b>	0	348	0	348
<b>8</b>	0	696	0	696
<b>9</b>	348	591	0	940
<b>10</b>	1288	1729	0	3017
<b>11</b>	4022	2205	0	6227
<b>12</b>	591	3017	0	3608
<b>13</b>	4707	2395	0	7101
<b>14</b>	4002	4307	0	8309
<b>15</b>	23791	9878	0	33669
<b>16</b>	25110	20613	0	45723
<b>17</b>	108676	61221	0	169897
<b>18</b>	130710	164946	0	295656
<b>19</b>	157032	164988	0	322019
<b>20</b>	180124	170859	0	350982
<b>21</b>	384404	247455	0	631859
<b>22</b>	739032	433732	0	1172764
<b>23</b>	859509	590454	0	1449963
<b>24</b>	516569	546741	0	1063310
<b>25</b>	235928	403140	0	639068
<b>26</b>	101496	239704	0	341200
<b>27</b>	44939	143989	0	188928
<b>28</b>	16760	84139	0	100899
<b>29</b>	15179	53350	0	68529
<b>30</b>	3726	22623	0	26349
<b>31</b>	2533	7353	0	9886
<b>32</b>	2098	4385	0	6483
<b>33</b>	3152	5124	0	8276
<b>34</b>	569	2746	0	3315
<b>35</b>	348	2075	0	2423
<b>36</b>	0	488	0	488
<b>37</b>	0	0	0	0
<b>38</b>	0	0	0	0
<b>39</b>	0	0	0	0
<b>40</b>	0	0	0	0
<b>41</b>	0	0	0	0
<b>42</b>	0	70	0	70
<b>TOTAL</b>	3566643	3395359	0	6962002
<b>Ind. Sampled</b>				4886
<b>Samples</b>				24
<b>Catch (ton)</b>				1033

**Table 13.** American plaice 3LNO stock Spanish catches length distribution.

American plaice Length (cm)	3LNO			Total
	Males	Females	Ind.	
19	0	0	178	178
20	196	0	0	196
21	56	0	0	56
22	89	56	89	234
23	56	308	0	364
24	457	137	89	683
25	346	562	0	908
26	851	270	145	1266
27	962	692	0	1654
28	954	274	234	1462
29	640	701	56	1396
30	2356	931	0	3288
31	2532	1287	0	3820
32	3073	1166	0	4238
33	5568	2278	0	7846
34	3490	5883	0	9373
35	7195	6352	0	13547
36	5983	7209	0	13192
37	3653	6911	0	10565
38	3891	11769	0	15660
39	5014	14740	0	19754
40	2619	19704	0	22323
41	1042	25324	0	26367
42	793	27657	0	28451
43	1088	24577	0	25665
44	1017	21263	0	22280
45	448	18013	0	18461
46	666	12148	0	12814
47	391	9344	0	9735
48	448	7518	0	7966
49	321	8007	0	8328
50	313	12130	0	12443
51	392	10729	0	11121
52	11	9151	0	9162
53	420	9917	0	10337
54	313	18149	0	18462
55	0	10490	0	10490
56	313	14911	0	15225
57	0	10234	0	10234
58	0	11425	0	11425
59	0	10199	0	10199
60	0	7382	0	7382
61	0	8478	0	8478
62	0	3877	0	3877
63	0	2729	0	2729
64	0	1957	0	1957
65	0	1929	0	1929
66	0	1132	0	1132
67	0	847	0	847
68	0	819	0	819
69	0	970	0	970
70	0	0	0	0
Total	57957	382538	791	441287
Ind. Sampled				3148
Samples				24
Catch (ton)				458



**Table 14.** Witch flounder Spanish catches length distribution for Div. 3NO.

<b>Witch flounder</b>	<b>3NO</b>			
<b>Length (cm)</b>	<b>Males</b>	<b>Females</b>	<b>Ind.</b>	<b>Total</b>
<b>30</b>				
<b>31</b>	2421	1125	0	3547
<b>32</b>	1211	605	512	2327
<b>33</b>	1125	605	512	2242
<b>34</b>	2242	520	1023	3786
<b>35</b>	3461	2575	2558	8595
<b>36</b>	3786	1117	3070	7973
<b>37</b>	4502	4289	3582	12372
<b>38</b>	7256	6020	2047	15322
<b>39</b>	4408	9311	3070	16789
<b>40</b>	6395	11706	1023	19125
<b>41</b>	3461	14495	1023	18980
<b>42</b>	2166	11110	512	13788
<b>43</b>	1722	11818	0	13540
<b>44</b>	1211	8722	1023	10956
<b>45</b>	0	7682	512	8194
<b>46</b>	0	5525	0	5525
<b>47</b>	520	3368	0	3888
<b>48</b>	0	2251	0	2251
<b>49</b>	0	2157	0	2157
<b>50</b>	0	1023	0	1023
<b>51</b>	0	0	0	0
<b>52</b>	0	605	0	605
<b>53</b>	0	0	0	0
<b>54</b>	0	0	0	0
<b>55</b>	520	0	0	520
<b>56</b>				
<b>57</b>				
<b>58</b>				
<b>59</b>				
<b>60</b>				
<b>TOTAL</b>	46407	106631	20466	173504
<b>Ind. Sampled</b>				319
<b>Samples</b>				3
<b>Catch (ton)</b>				77

**Table 15.** Yellowtail flounder Spanish catches length distribution for Div. 3LNO.

Yellowtail flounder Length (cm)	3LNO			Total
	Males	Females	Ind.	
14	0	2146	0	2146
15	0	0	0	0
16	0	0	0	0
17	0	2146	0	2146
18	0	0	0	0
19	2146	0	2146	4292
20	0	0	0	0
21	0	0	6438	6438
22	6438	0	2146	8584
23	0	4292	0	4292
24	2146	6438	0	8584
25	2146	10729	0	12875
26	10729	17164	0	27894
27	3140	4292	0	7431
28	11723	8581	0	20304
29	39446	19310	0	58756
30	39605	24434	0	64038
31	69321	33170	0	102491
32	59878	34666	0	94545
33	70440	44713	0	115153
34	26263	54656	0	80918
35	30853	75840	0	106693
36	10565	68055	0	78620
37	11397	56640	0	68037
38	4133	52040	0	56173
39	3137	49206	0	52342
40	4286	53656	0	57942
41	0	23111	0	23111
42	0	31000	0	31000
43	0	10562	0	10562
44	0	4286	0	4286
45	0	17143	0	17143
46	2143	3137	0	5279
47	0	2143	0	2143
48	0	0	0	0
49	0	0	0	0
50	0	6429	0	6429
<b>Total</b>	409933	719984	10729	1140646
<b>Ind. Sampled</b>				636
<b>Samples</b>				3
<b>Catch (ton)</b>				362

**Table 16.** Greenland halibut Spanish catches length distribution for Div. 3L and 3M.

Greenland halibut Length (cm)	3L				3M			
	Males	Females	Ind.	Total	Males	Females	Ind.	Total
29	0	0	0	0	0	0	0	0
30	668	231	0	898	0	0	0	0
31	634	429	0	1063	0	226	0	226
32	1074	948	0	2022	0	0	0	0
33	2608	2025	0	4633	504	995	0	1499
34	7799	5648	0	13447	2381	2804	0	5185
35	7307	6878	0	14185	4430	1569	0	5999
36	16484	14044	0	30528	4104	5979	0	10083
37	19267	13774	0	33041	6153	7216	0	13369
38	28773	32380	1296	62448	8696	9741	0	18436
39	39258	37760	0	77019	14250	14371	0	28620
40	50403	57300	0	107703	17733	30559	0	48292
41	67749	81338	1400	150487	19662	38978	0	58639
42	73335	110210	0	183545	21339	42895	0	64234
43	85488	133809	1400	220696	26714	46020	0	72734
44	87735	151919	1050	240703	30659	44709	0	75368
45	95819	178616	1751	276186	26510	49871	0	76381
46	92649	186264	1523	280436	27753	54322	0	82074
47	91610	197306	1873	290788	22091	55409	0	77500
48	87659	205351	1671	294682	23422	48057	0	71479
49	69882	193802	2222	265907	22219	40861	0	63080
50	59255	169646	1523	230424	17371	41721	0	59092
51	49901	142082	1749	193732	14339	38394	0	52733
52	30258	123857	0	154115	10935	30121	0	41056
53	24220	96452	0	120672	5117	29057	0	34175
54	14036	79658	473	94166	2780	26208	0	28988
55	9278	58670	228	68176	3734	17816	0	21550
56	7651	50121	350	58122	2913	17029	0	19943
57	4956	32647	350	37953	1085	15753	0	16837
58	4057	26901	350	31308	1389	10868	0	12256
59	1676	19970	700	22346	601	9551	0	10152
60	1125	14440	0	15565	483	9124	0	9607
61	1190	10993	700	12883	435	6956	0	7391
62	351	10964	0	11314	335	6979	0	7314
63	405	6088	0	6493	256	7136	0	7392
64	116	4157	350	4622	152	3459	0	3611
65	130	4583	0	4714	0	3485	0	3485
66	0	2413	0	2413	84	1785	0	1870
67	0	2616	0	2616	0	2348	0	2348
68	0	1279	0	1279	0	2204	0	2204
69	0	1471	350	1821	0	2046	0	2046
70	0	1760	0	1760	0	1547	0	1547
71	0	1358	0	1358	0	934	0	934
72	0	1081	0	1081	0	2033	0	2033
73	0	358	0	358	0	1537	0	1537

74	0	549	0	549	0	1465	0	1465
75	0	181	0	181	0	679	0	679
76	0	176	0	176	84	851	0	935
77	0	241	0	241	0	236	0	236
78	0	597	0	597	0	620	0	620
79	0	464	0	464	0	227	0	227
80	0	270	0	270	0	447	0	447
81	0	683	0	683	0	399	0	399
82	0	398	0	398	0	227	0	227
83	0	0	0	0	0	464	0	464
84	0	191	0	191	0	170	0	170
85	0	249	0	249	0	295	0	295
86	0	339	0	339	0	170	0	170
87	0	231	0	231	0	0	0	0
88	0	113	0	113	0	143	0	143
89	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0
91	0	121	0	121	0	0	0	0
92	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0
98	0	177	0	177	0	0	0	0
99	0	0	0	0	0	0	0	0
100	0	177	0	177	0	0	0	0
101	0	231	0	231	0	0	0	0
<b>Total</b>	1134804	2478988	21307	3635099	340713	789066	0	1129779
<b>Ind. Sampled</b>				21343				4734
<b>Samples</b>				108				21
<b>Catch (ton)</b>				3164				1100

**Table 17.** Greenland halibut Spanish catches length distribution for Div. NO

<b>Greenland halibut</b>	<b>3NO</b>			
<b>Length (cm)</b>	<b>Males</b>	<b>Females</b>	<b>Ind.</b>	<b>Total</b>
29	0	145	0	145
30	0	0	0	0
31	277	185	0	462
32	0	0	0	0
33	553	562	0	1115
34	848	0	0	848
35	824	334	0	1157
36	1311	1664	0	2976
37	2773	2610	0	5383
38	2214	4152	0	6366
39	3762	5141	0	8903
40	5894	11618	0	17512
41	7846	13071	0	20916
42	9915	20130	0	30045
43	8771	19871	0	28642
44	16049	29950	0	46000
45	13590	27928	0	41519
46	12650	31077	0	43727
47	13699	35508	0	49207
48	9011	44078	0	53089
49	9616	35268	0	44884
50	6543	30574	0	37117
51	6277	25361	0	31638
52	4887	24207	0	29094
53	3437	16708	0	20145
54	1871	12752	0	14623
55	1599	10272	0	11871
56	1180	7805	0	8985
57	889	4061	0	4950
58	567	5322	0	5889
59	272	3791	0	4063
60	162	1417	0	1579
61	0	1775	0	1775
62	267	470	0	737
63	203	922	0	1125
64	53	376	0	429
65	0	250	0	250
66	0	293	0	293
67	0	247	0	247
68	0	347	0	347
69	0	430	0	430
70	0	44	0	44
71	0	264	0	264
72	0	0	0	0
73	0	716	0	716
74	0	575	0	575

75	0	0	0	0
76	0	0	0	0
77	0	145	0	145
78	0	145	0	145
79	0	0	0	0
80	0	289	0	289
81	0	0	0	0
82	0	0	0	0
83	0	0	0	0
84	0	145	0	145
85	0	0	0	0
86	0	0	0	0
87	0	0	0	0
88	0	0	0	0
89	0	0	0	0
90	0	0	0	0
91	0	0	0	0
92	0	0	0	0
93	0	0	0	0
94	0	0	0	0
95	0	0	0	0
96	0	0	0	0
97	0	0	0	0
98	0	0	0	0
99	0	0	0	0
100	0	206	0	206
101	0	0	0	0
<b>Total</b>	147811	433202	0	581013

<b>Ind. Sampled</b>	3642
<b>Samples</b>	19
<b>Catch (ton)</b>	496

**Table 18.** Greenland halibut Subarea 2 Div. 3LMNO stock Spanish catches length distribution.

<b>Greenland halibut Length (cm)</b>	<b>3LMNO</b>			<b>Total</b>
	<b>Males</b>	<b>Females</b>	<b>Ind.</b>	
<b>29</b>	0	145	0	145
<b>30</b>	668	231	0	898
<b>31</b>	911	840	0	1751
<b>32</b>	1074	948	0	2022
<b>33</b>	3665	3582	0	7248
<b>34</b>	11028	8452	0	19480
<b>35</b>	12561	8780	0	21341
<b>36</b>	21899	21688	0	43586
<b>37</b>	28193	23600	0	51793
<b>38</b>	39682	46272	1296	87251
<b>39</b>	57270	57272	0	114542
<b>40</b>	74030	99477	0	173507
<b>41</b>	95257	133387	1400	230043
<b>42</b>	104589	173235	0	277824
<b>43</b>	120973	199700	1400	322072
<b>44</b>	134443	226578	1050	362071
<b>45</b>	135919	256416	1751	394086
<b>46</b>	133053	271663	1523	406238
<b>47</b>	127400	288223	1873	417496
<b>48</b>	120092	297486	1671	419249
<b>49</b>	101717	269931	2222	373871
<b>50</b>	83170	241941	1523	326634
<b>51</b>	70516	205837	1749	278103
<b>52</b>	46080	178184	0	224264
<b>53</b>	32774	142217	0	174991
<b>54</b>	18686	118618	473	137777
<b>55</b>	14611	86759	228	101598
<b>56</b>	11745	74955	350	87050
<b>57</b>	6930	52461	350	59740
<b>58</b>	6013	43091	350	49453
<b>59</b>	2550	33311	700	36561
<b>60</b>	1770	24981	0	26751
<b>61</b>	1624	19725	700	22049
<b>62</b>	953	18412	0	19365
<b>63</b>	864	14146	0	15010
<b>64</b>	321	7992	350	8663
<b>65</b>	130	8319	0	8449
<b>66</b>	84	4492	0	4576
<b>67</b>	0	5211	0	5211
<b>68</b>	0	3830	0	3830
<b>69</b>	0	3948	350	4297
<b>70</b>	0	3352	0	3352
<b>71</b>	0	2556	0	2556
<b>72</b>	0	3115	0	3115
<b>73</b>	0	2612	0	2612
<b>74</b>	0	2590	0	2590

75	0	860	0	860
76	84	1026	0	1111
77	0	622	0	622
78	0	1361	0	1361
79	0	691	0	691
80	0	1006	0	1006
81	0	1082	0	1082
82	0	625	0	625
83	0	464	0	464
84	0	505	0	505
85	0	543	0	543
86	0	509	0	509
87	0	231	0	231
88	0	255	0	255
89	0	0	0	0
90	0	0	0	0
91	0	121	0	121
92	0	0	0	0
93	0	0	0	0
94	0	0	0	0
95	0	0	0	0
96	0	0	0	0
97	0	0	0	0
98	0	177	0	177
99	0	0	0	0
100	0	383	0	383
101	0	231	0	231
<b>Total</b>	1623328	3701256	21307	5345891
<b>Ind. Sampled</b>				29719
<b>Samples</b>				148
<b>Catch (ton)</b>				4760



**Table 19.** Greenland halibut Subarea 2 Div. 3LMNO stock Spanish catches ages distribution, mean weight (g) and mean length (cm) by age.

Abundance					Mean Weight (gr)				
Age	Males	Females	Ind.	Total	Age	Males	Females	Ind.	Total
2					2				
3		1216		1216	3		247		247
4	22503	13680	44	36227	4	371	372	473	372
5	331178	491021	2560	824759	5	562	588	576	577
6	701239	1198187	7303	1906729	6	766	785	801	778
7	469873	1371835	7452	1849161	7	1014	1060	1026	1048
8	78229	349596	1439	429263	8	1309	1350	1401	1342
9	15871	118514	846	135230	9	1582	1536	1676	1542
10	3346	79055	873	83274	10	1928	1896	1903	1897
11	961	36555	471	37986	11	2147	2220	2245	2219
12	35	13256	164	13455	12	2480	2555	2668	2556
13	27	9892	156	10074	13	3305	2943	2834	2942
14	34	7492		7526	14	3791	3385		3387
15	34	5563		5597	15	3791	3806		3806
16		2598		2598	16		4859		4859
17		1799		1799	17		4976		4976
18		125		125	18		5831		5831
19		100		100	19		7494		7494
20+		773		773	20+		8557		8557

Mean Length (cm)				
Age	Males	Females	Ind.	Total
2				
3		31.1		31.1
4	35.4	35.5	38.5	35.4
5	40.6	41.2	40.9	41.0
6	45.0	45.4	45.7	45.2
7	49.4	50.1	49.6	49.9
8	53.7	54.3	54.9	54.2
9	57.2	56.7	58.4	56.8
10	61.1	60.8	60.9	60.8
11	63.4	64.0	64.2	64.0
12	66.5	67.1	68.0	67.1
13	72.8	70.2	69.5	70.2
14	76.5	73.6		73.6
15	76.5	76.4		76.4
16		82.9		82.9
17		83.6		83.6
18		88.1		88.1
19		95.7		95.7
20+		100.0		100.0

**Table 20.** Skates Spanish catches length distribution for Div. 3LNO.

<b>Skates Length (cm)</b>	<b>3LNO</b>			<b>Total</b>
	<b>Males</b>	<b>Females</b>	<b>Ind.</b>	
<b>30</b>	139	0	0	139
<b>31</b>	0	0	0	0
<b>32</b>	980	0	0	980
<b>33</b>	980	0	0	980
<b>34</b>	0	980	0	980
<b>35</b>	0	2940	0	2940
<b>36</b>	980	980	0	1960
<b>37</b>	1686	980	0	2666
<b>38</b>	1118	4193	0	5312
<b>39</b>	3021	2234	0	5255
<b>40</b>	1210	4992	0	6202
<b>41</b>	4381	2557	0	6938
<b>42</b>	6055	8456	0	14511
<b>43</b>	9008	8097	0	17105
<b>44</b>	1578	14762	0	16340
<b>45</b>	10448	10643	0	21091
<b>46</b>	12423	12788	0	25211
<b>47</b>	10080	17745	0	27825
<b>48</b>	13332	17417	0	30749
<b>49</b>	13939	13703	0	27642
<b>50</b>	27659	14118	0	41777
<b>51</b>	15898	13776	0	29673
<b>52</b>	16073	32418	0	48492
<b>53</b>	18031	28903	0	46934
<b>54</b>	19997	21785	0	41782
<b>55</b>	34663	25803	0	60466
<b>56</b>	22104	24747	0	46851
<b>57</b>	16309	28784	0	45093
<b>58</b>	15556	24091	0	39647
<b>59</b>	23043	23241	0	46284
<b>60</b>	21402	15103	0	36505
<b>61</b>	18442	16571	0	35012
<b>62</b>	23891	27079	0	50970
<b>63</b>	20344	13142	0	33486
<b>64</b>	26689	8988	0	35677
<b>65</b>	14612	14215	0	28828
<b>66</b>	29968	29502	0	59470
<b>67</b>	27805	16654	0	44459
<b>68</b>	18950	28053	0	47002
<b>69</b>	21862	23965	0	45828
<b>70</b>	23766	19352	0	43118
<b>71</b>	19774	16091	0	35865
<b>72</b>	24933	23545	0	48479
<b>73</b>	27064	20735	0	47799
<b>74</b>	14450	8665	0	23116
<b>75</b>	30786	8904	0	39690
<b>76</b>	21207	8034	0	29241

<b>77</b>	29100	3545	0	32645
<b>78</b>	42815	7559	0	50374
<b>79</b>	23566	4601	0	28167
<b>80</b>	27592	1388	0	28981
<b>81</b>	12047	2561	0	14608
<b>82</b>	11965	0	0	11965
<b>83</b>	10252	602	0	10854
<b>84</b>	9111	0	0	9111
<b>85</b>	6060	0	0	6060
<b>86</b>	10485	0	0	10485
<b>87</b>	2458	602	0	3060
<b>88</b>	3023	0	0	3023
<b>89</b>	3060	0	0	3060
<b>90</b>	0	0	0	0
<b>91</b>	1448	0	0	1448
<b>Total</b>	879618	680589	0	1560207

<b>Ind. Sampled</b>	1629
<b>Samples</b>	13
<b>Catch (ton)</b>	3858

**Table 21.** Roughhead grenadier Spanish catches length distribution measured as preanal fin lengths (AFL) by Division (3L and 3M).

Roughhead G.					3M			
Length (cm)	Males	Females	Ind.	Total	Males	Females	Ind.	Total
7	0	0	0	0	0	0	0	0
8	147	147	0	295	0	0	0	0
9	184	342	0	526	0	265	0	265
10	597	197	0	794	0	0	0	0
11	1632	1667	0	3300	886	0	0	886
12	4684	2866	0	7551	1421	976	0	2397
13	3350	5208	0	8558	1415	1862	0	3277
14	9919	5659	0	15579	893	274	0	1167
15	16889	7634	0	24522	1421	1158	0	2580
16	15635	8379	0	24015	2753	1064	0	3817
17	16429	5947	0	22376	4271	1430	0	5701
18	12954	9122	0	22076	3557	2051	0	5609
19	11976	10819	0	22795	5953	1604	0	7556
20	7373	10158	0	17530	3466	3461	0	6927
21	6224	10107	0	16331	3204	2950	0	6154
22	4684	11350	0	16033	625	4566	0	5190
23	1535	11156	0	12691	356	4981	0	5337
24	960	7590	0	8550	90	5961	0	6051
25	184	8769	0	8953	0	4729	0	4729
26	0	6097	0	6097	0	7126	0	7126
27	683	5612	0	6295	0	4839	0	4839
28	0	3949	0	3949	0	5874	0	5874
29	0	3916	0	3916	0	4204	0	4204
30	0	2585	0	2585	0	3208	0	3208
31	0	1482	0	1482	0	2409	0	2409
32	0	897	0	897	0	900	0	900
33	0	810	0	810	0	716	0	716
34	0	790	0	790	0	809	0	809
35	0	548	0	548	0	807	0	807
36	0	516	0	516	0	269	0	269
37	0	147	0	147	0	91	0	91
38	0	479	0	479	0	265	0	265
39	0	0	0	0	0	91	0	91
40	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0
Total	116041	144945	0	260986	30313	68941	0	99253
Ind. Sampled				2103				654
Samples				13				3
Catch (ton)				177				114

**Table 22.** Roughhead grenadier Spanish catches length distribution measured as preanal fin lengths (AFL) for Div 3NO and the total Spanish length distributions (AFL) for Divisions 3LMNO.

Roughhead G. 3NO					3LMNO			
Length (cm)	Males	Females	Ind.	Total	Males	Females	Ind.	Total
7	0	0	0	0	0	0	0	0
8	0	0	0	0	147	147	0	295
9	68	0	0	68	252	607	0	859
10	0	68	0	68	597	265	0	862
11	427	132	0	559	2946	1800	0	4745
12	556	427	0	983	6662	4269	0	10931
13	738	2124	0	2862	5502	9194	0	14697
14	1223	1912	0	3135	12036	7845	0	19881
15	2368	3411	0	5779	20678	12203	0	32881
16	2116	2836	0	4952	20505	12279	0	32784
17	2105	1637	0	3742	22805	9014	0	31819
18	1769	1241	0	3010	18280	12415	0	30695
19	1768	1541	0	3309	19697	13964	0	33661
20	1952	1386	0	3338	12791	15004	0	27795
21	1530	2739	0	4269	10959	15796	0	26754
22	655	2000	0	2655	5964	17915	0	23879
23	380	2044	0	2424	2271	18181	0	20453
24	268	1936	0	2204	1317	15488	0	16805
25	64	2141	0	2206	249	15639	0	15888
26	158	1983	0	2141	158	15207	0	15365
27	0	1377	0	1377	683	11829	0	12512
28	64	1621	0	1686	64	11444	0	11508
29	0	1466	0	1466	0	9586	0	9586
30	0	781	0	781	0	6575	0	6575
31	0	1206	0	1206	0	5097	0	5097
32	0	487	0	487	0	2283	0	2283
33	0	326	0	326	0	1852	0	1852
34	0	542	0	542	0	2141	0	2141
35	0	184	0	184	0	1540	0	1540
36	0	152	0	152	0	936	0	936
37	0	281	0	281	0	519	0	519
38	0	94	0	94	0	838	0	838
39	0	0	0	0	0	91	0	91
40	0	0	0	0	0	0	0	0
41	0	45	0	45	0	45	0	45
<b>Total</b>	18211	38121	0	56331	164565	252006	0	416571
<b>Ind. Sampled</b>				1151				3908
<b>Samples</b>				7				23
<b>Catch (ton)</b>				42				333

**Table 23.** Roughhead grenadier Div. 3LMNO Spanish catches ages distribution, mean weight (g) and mean length (AFL cm) by age.

Abundance					Mean Weight (gr)				
Age	Males	Females	Ind.	Total	Age	Males	Females	Ind.	Total
3		49		49	3		56		56
4	266	490		756	4	69	77		74
5	9356	7781		17137	5	156	166		160
6	5796	19073		24869	6	239	280		270
7	33359	21150		54509	7	301	343		317
8	29948	16174		46122	8	405	456		423
9	26142	14803		40946	9	493	598		531
10	19381	30868		50249	10	587	763		695
11	22973	37284		60257	11	735	999		899
12	12732	23305		36038	12	754	1123		993
13	2704	21747		24451	13	1126	1476		1437
14	1632	16208		17840	14	1274	1670		1634
15	123	11044		11168	15	1670	1660		1660
16	18	6879		6897	16	1837	2079		2078
17	114	1813		1927	17	1657	3480		3372
18	20	12679		12699	18	1488	2216		2215
19		5419		5419	19		2710		2710
20		1363		1363	20		2835		2835
21		864		864	21		3778		3778
22		257		257	22		3467		3467
23		2712		2712	23		3085		3085
				416526					
Mean Length (cm)									
Age	Males	Females	Ind.	Total					
3		8.5		8.5					
4	9.1	9.5		9.4					
5	12.1	12.3		12.2					
6	14.0	14.8		14.6					
7	15.2	15.9		15.4					
8	16.8	17.6		17.1					
9	18.0	19.3		18.5					
10	19.2	21.0		20.3					
11	20.7	23.0		22.1					
12	20.9	24.0		22.9					
13	24.0	26.4		26.1					
14	25.1	27.5		27.3					
15	27.6	27.4		27.4					
16	28.5	29.7		29.7					
17	27.5	35.4		35.0					
18	26.5	30.3		30.3					
19		32.4		32.4					
20		33.0		33.0					
21		36.5		36.5					
22		35.5		35.5					
23		34.1		34.1					

**Table 24.** Total biomass (t.) of the Spanish 3L Survey (Flemish Pass) in 2007 inside Canadian Waters, calculated by the swept area method, by species and stratum.

<b>Stratum</b>	<b>Area nm<sup>2</sup></b>	<b>Greenland Halibut</b>	<b>Redfish</b>	<b>Roughhead Grenadier</b>	<b>Witch Flounder</b>	<b>American Plaice</b>	<b>Cod</b>	<b>Thorny Skate</b>	<b>Northern Shrimp</b>
368	334	1961	5408	564	10	50	75	1450	5409
387	462	2210	5053	1699	60	196	127	980	13703
733	234	508	5339	1408	75	5	9	377	1735
734	75	274	302	326	33	0	0	40	1
736	175	532	217	530	520	0	0	34	7
737	227	341	0	535	0	0	0	0	0
738	221	323	0	649	0	0	0	0	0
739	254	533	0	1991	0	0	0	0	0
740	264	371	0	2585	0	0	0	0	0
741	123	397	4	321	0	0	0	0	0
742	142	440	0	364	0	0	0	0	0
743	160	319	0	744	0	0	0	0	1
744	214	518	6	3036	0	0	0	0	0
Total	2885	8726	16328	14752	698	251	210	2881	20857